

Work Order ID 73015

Tuesday, August 23, 2011 3:33:41 PM



Page 1

Item ID: D3391-025

Accept



Setup Start



Revision ID:

Stop



Item Name: Aft Tube Assembly

Start Date: 8/23/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 9/9/2011 Req'd Qty: 1.00

Customer:

Reference:

Run Start



Approvals:

Process Plan:

Date: 11/08/21

Tooling:

Date:

Stop



QC:

Date:

SPC (Y/N):

Date:

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Draw Nbr

Revision Nbr

D3391

Rev H/ DEO

100

0.00



MORI SEIKI CNC LATHE LARGE

Mori Seiki

Memo

0.00

Mori Seiki CNC Lathe Large

Turn as per Folio FA599

Rev. A & Dwg D3391 Rev: H

scribe batch # on fwd end at 90 degree

110

0.00



QC

Memo

0.00

Quality Control

QC2- Inspect parts off machine FAI/FAIB

111

0.00



QC

Memo

0.00

Quality Control

QC8- Inspect parts - second check

AM M.L 11/09/06

AM M.L 11/09/06

11.2.13

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

W/O:		WORK ORDER CHANGES					
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Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start

QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

150

0.00



Skidtubes

Skidtubes

Memo

0.00

Skidtubes

1-Drill (PILOT HOLE) aft cap holes per Dwg D3391 using DT8803



11-10-12

160

0.00



CNC Bend 1

BENDING MACHINE - SKIDTUBES

Memo

0.00

CNC Delta 100 Bender

Form as per Dwg D3391 Using Bend Prog 3391025

① SAD 11-10-12

170

0.00



QC

QC5- Inspect part completeness to step on W/O

Memo

0.00

Quality Control

1 ✓ SE 11/11/02

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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NOTE: Date & initial all entries

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Start Date: 8/23/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 9/9/2011 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals:

Process Plan:

Date:

Tooling:

Date:

Stop




QC:

Date:

SPC (Y/N):

Date:

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180	Skidtubes	0.00							
	Skidtubes								
Skidtubes	Memo	0.00							
	1-Open Aft cap pilot hole to .208" as per Dwg D3391								
	2-Drill float bag holes using DT8809 as per Dwg D3391(Holes marked "A" Only.								
	3-Drill wearplate holes as per Dwg D3391 using DT8878(Mid Tube) & DT8217 Wearplate Jig .								
	*****Do Not Open To Finished Size*****								
	4-Drill Wearshoe holes as per DWG D3391 using DT8939 locating from 2 previously drilled aft wearplate holes.								
	5-Open wearplate holes to 0.250" and c'bore as per dwg D3391								
	6-Open up all wearshoe , wearplate to 0.297"and float bag holes to 0.328" as per Dwg D3391.								
	7-Deburr								

11-11-3

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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NOTE: Date & initial all entries

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Revision ID:

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Item Name: Aft Tube Assembly

Start Date: 8/23/2011 Start Qty: 1.00

Required Date: 9/9/2011 Req'd Qty: 1.00

Cust Item ID:

Customer:

Reference:

Run Start

Approvals: Process Plan: Date:

Tooling: Date:

QC: Date:

SPC (Y/N): Date:

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

190

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

11-11-03 (1)

200

Chemical Conversion Coat per QSI005 4.1

0.00



HandFinish

Memo

0.00

Hand Finishing

SA 11-11-03 (1)

210

QC3- Inspect Part Finish

0.00



QC

Memo

0.00

Quality Control

DP 11-11-3

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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NOTE: Date & initial all entries

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Item ID: D3391-025

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Stop



Item Name: Aft Tube Assembly

Start Date: 8/23/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 9/9/2011 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals:

Process Plan:

Date:

Tooling:

Date:

Stop



QC:

Date:

SPC (Y/N):

Date:

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
220	Skidtubes	0.00							
	Skidtubes								
	Skidtubes								
	Memo	0.00							
	Instal spacers as per dwg D3391								
	A/R Magnabond 6398 Batch: 117870								
	exp. date: 12-2-30								
	cure time 12hrs as per QSI0015								
230	QC5- Inspect part completeness to step on W/O	0.00							
	QC	0.00							
	Quality Control								
235	Pressure Wash per QSI005 4.3	0.00							
	HandFinish	0.00							
	Hand Finishing								
	Memo								
	AND REALODINE AS PER PAR09-043								

DP/SAD

11-11-3

11-11-04 (1)

11/11/08

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 73015

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Item ID: D3391-025
Revision ID:
Item Name: Aft Tube Assembly

Accept



Setup Start



Stop



Start Date: 8/23/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 9/9/2011 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Stop



Approvals: Process Plan: Date: Tooling: Date:

QC: Date: SPC (Y/N): Date:

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

240

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

0.00



Powdercoat

Memo

0.00

Powder Coating

START TIME: _____

OVEN TEMPERATURE: _____

FINISH TIME: _____

0.00

250

QC3- Inspect Part Finish

0.00



QC

Memo

0.00

Quality Control

260

HandFinishing

0.00



HandFinish

Memo

0.00

Hand Finishing

1-Install inserts as per Dwg D3391

2-Install Aft Cap as per Dwg D3391

A/ R Sikaflex-241/-291 _____

Sikaflex expiry date: _____

Dart Aerospace Ltd

W/O:		73015						WORK ORDER CHANGES	
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector		

Part No: D339K-025 PAR #: Fault Category: Machine + QC inspectors NCR: Yes No DQA: Date: 11/11/18
 Resolution: Scrap Disposition: Scrap QA: N/C Closed: Date: 11/11/18

NCR: <u>11-989</u>		WORK ORDER NON-CONFORMANCE (NCR) # 1369.31						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
11/11/18	# 240	Found at this step before P/C that the tube has A large marking from turning on the inside bore at about	11/16/18	SCRAP TUBE 4.11.16 Chatter marks are sharp & too deep to buff out. Margin of safety of part are too small to divide allowable wall thickness.	11-11-16	11/16/18	11/16/18	11/16/18
	# 22	2" From Fwd End R.C. chatter from Boring out also h.o.a. missed at all inspection.		Give to Eng for testing	11-11-16			

NOTE: Date & initial all entries

Work Order ID 73015

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Tuesday, August 23, 2011 3:33:41 PM

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Accept



Setup Start



Revision ID:

Stop



Item Name: Aft Tube Assembly

Start Date: 8/23/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 9/9/2011 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals:

Process Plan:

Date:

Tooling:

Date:

Stop



QC:

Date:

SPC (Y/N):

Date:

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

270

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

280

Identify as per dwg & Stock Location: _____

0.00



Packaging

Memo

0.00

Packaging

290

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

*Scrap**11-11-17*
(Signature)

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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NOTE: Date & initial all entries

Picklist Print

Page 1

Tuesday, August 23, 2011 3:33:46 PM

Work Order ID: 73015



Parent Item: D3391-025



Parent Item Name: Aft Tube Assembly

Start Date: 8/23/2011

Required Date: 9/9/2011

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev B 06-02-07 ECN773 dwg rev. D EC
 IPP Rev:C 06-03-28 Update Manuf. Instructions JLM [unclear]
 IPP rev D 07.03.20 revF dwg EC
 IPP rev E 07.11.07 rev G dwg ecn 1053p EC verified by: DD
 IPP Rev:F 07-11-13 ECN 1056 DD verified by: EC
 IPP Rev:G 08-09-10 revH as per dwg DD verified by:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6014-090 ALUMINUM EXTRUSION		Manufactured	No			100	Each	33.0000	1	1			

Location	Loc Qty	Loc Code
LG	33	

56572

66179

D3670-4-200



SPACER

Manufactured No

230

Each

152.0000

4

4

mm.c 11/08/31

Location	Loc Qty	Loc Code
LG	56	

70822

71850

LG001

72851

14

42

96

96

4 11-11-3

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

Tuesday, August 23, 2011 3:33:46 PM

Work Order ID: 73015

Parent Item: D3391-025

Parent Item Name: Aft Tube Assembly

Start Date: 8/23/2011

Required Date: 9/9/2011

Start Qty: 1.00

Required Qty: 1.00

D2646

Manufactured No

270

Each

96.0000

1

1



Aft Cap

Location

Loc Qty

Loc Code

FP004

49

68280

49

FP006

5

62678

5

FP-4

38

70945

1

71070

37

fp5

4

71038

4

D3537-1

Manufactured No

270

Each

17.0000

1

1



Wearpad

Location

Loc Qty

Loc Code

FP001

10

69530

10

FP017

7

69817

5

70686

2

D3537-7

Manufactured No

270

Each

0.0000

1

1



Wearpad

D3553-1

Manufactured No

270

Each

4.0000

1

1



Gasket

Location

Loc Qty

Loc Code

FP013

4

56568

4

Tuesday, August 23, 2011 3:33:47 PM

Shop Packet Print

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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NOTE: Date & initial all entries

Picklist Print

Tuesday, August 23, 2011 3:33:47 PM

Work Order ID: 73015



Parent Item: D3391-025



Parent Item Name: Aft Tube Assembly

Start Date: 8/23/2011

Required Date: 9/9/2011

Start Qty: 1.00

Required Qty: 1.00

D3553-3 Manufactured No

270

Each

28.0000

1

1



Gasket

Location

Loc Qty

Loc Code

FP

20

31631

20

FP013

8

53480

8

D3672-1 Manufactured No

270

Each

1,186.000

2

2



Phenolic Washer

Location

Loc Qty

Loc Code

ST074

1184

64177

188

66821

496

72229

500

ST077

2

52505

2

ALS4-1032-130 Purchased No

260

Each

1,559.000

14

14



Insert

Location

Loc Qty

Loc Code

ST281

370

118386

370

ST282

1189

117717

54

118237

879

118312

256

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Picklist Print

Tuesday, August 23, 2011 3:33:47 PM

Work Order ID: 73015



Parent Item: D3391-025



Parent Item Name: Aft Tube Assembly

Start Date: 8/23/2011

Required Date: 9/9/2011

Start Qty: 1.00

Required Qty: 1.00

ALS4-1032-225

Purchased

No

270

Each

931.0000

12

12



Insert

Location

Loc Qty

Loc Code

ST282

931

110768

62

117717

9

118386

860

AN3C4A

Purchased

No

270

Each

2,261.000

6

6



BOLT

Location

Loc Qty

Loc Code

ST350

2261

117313

2

117688

36

117795

1

117872

22

118012

20

118112

40

118451

1000

118628

1140

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order: 73015
Description: Float Skidtube (412)		Part Number: D3391-3
Inspection Dwg: D3391	Rev: H	Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
Lathe Section						
14.000	+/-0.010	14.000	✓		tape	mm. L-02
3.500	+/-0.010	3.500	✓		vern	CNC-08
88.93	+/-0.030	88.93	✓		tape	mm. L-02
Ø3.200	+/-0.010	3.202	✓		mic	CNC-05
88.93	+/-0.030	88.93	✓		tape	mm. L-02
Ø3.750	+/-0.010	3.750	✓		vern	CNC-08
30° x 160° chamfer	+/-0.010	30° x 160	✓		"	

Measured by: mm. L	Date: 11/09/11
Audited by: [Signature]	Date: 11-9-13

HAAS Section						
1.526	+0.000/-0.030	1.510	✓		Vern	GA-01
7.500	+/-0.010	7.501	✓		Vern	CNC-02
27.750	+/-0.010	27.750	✓		TAPE	GA-12
31.750	+/-0.010	31.750	✓		"	"
35.250	+/-0.010	35.250	✓		"	"
3.300	+/-0.010	3.295	✓		Vern	CNC-02
0.200	+/-0.010	0.201	✓		Vern	GA-01
3.520	+/-0.010	3.515	✓		Mic	GA-10
0.687	+0.010/-0.000	0.690	✓		Vern	GA-01
R0.062	+/-0.010	R0.062	✓		R-G	ref.
Ø0.484	+0.005/-0.001	Ø0.488	✓		Vern	GA-01

Measured by: K.A	Date: 11/09/15
Audited by: [Signature]	Date: 11/09/16

Rev	Date	Change	Revised by	Approved
A	06.04.24	New Issue P/O D3391-015/-025	KJ/JLM	
B	06.06.19	Dwg revision update	KJ/JLM	
C	07.04.20	Ø0.208 dimension removed	KJ/JLM	
D	07.09.06	0.400 dimension removed	KJ/JLM	
E	07.11.23	Dwg Rev. updated	KJ/EC/DD	
F	09.04.27	Dimensions updated per Rev H and NCR09-028	KJ/JLM	
G	09.11.16	Dimension 0.200 removed	KJ	
H	11.06.21	Dimension 44.995 removed	KJ	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE		Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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NOTE: Date & initial all entries

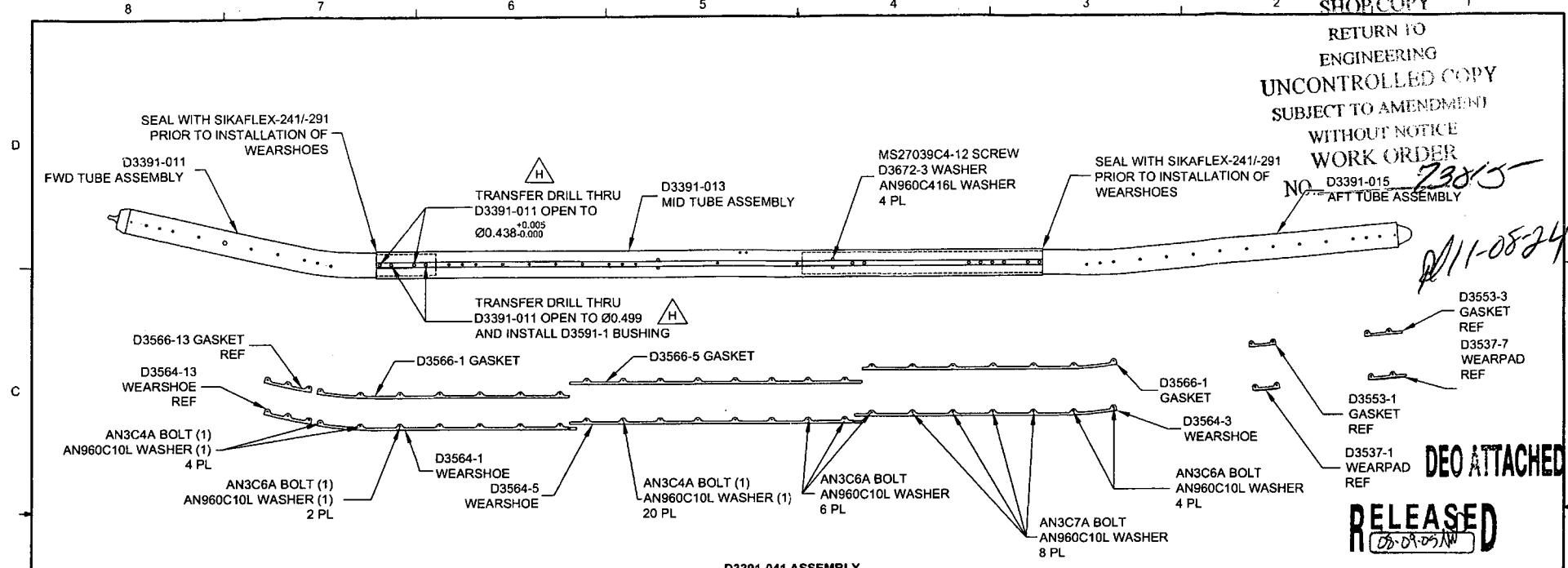
SHOP COPY

RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. D3391-015 2385
AFT TUBE ASSEMBLY

11-0524

DEO ATTACHED

RELEASED
08-09-00



D3391-041 ASSEMBLY

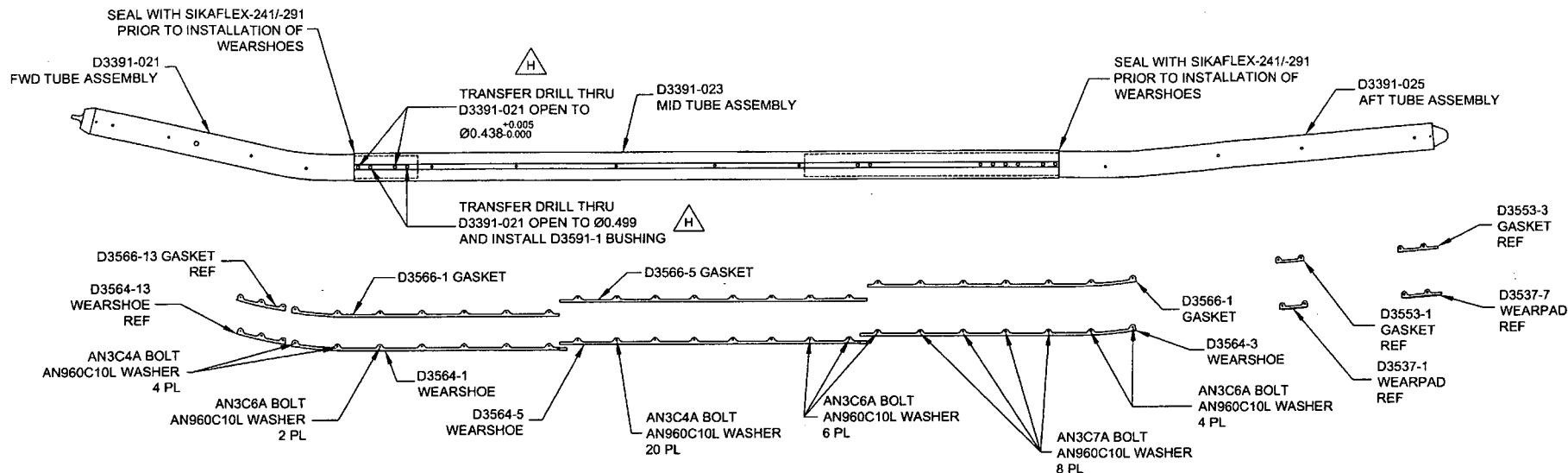
D3391-041 FLOAT SKIDTUBE ASSEMBLY PARTS LIST

QTY	PART NUMBER	DESCRIPTION
1	D3391-041	FLOAT SKIDTUBE ASSEMBLY
1	D3391-011	FWD TUBE ASSEMBLY
1	D3391-013	MID TUBE ASSEMBLY
1	D3391-015	AFT TUBE ASSEMBLY
1	D3564-1	WEARSHOE
1	D3564-5	WEARSHOE
1	D3566-1	GASKET
1	D3566-5	GASKET
2	D3591-1	BUSHING
4	D3672-3	WASHER
24	AN3C4A	BOLT
12	AN3C6A	BOLT
8	AN3C7A	BOLT
44	AN960C10L	WASHER
4	MS27039C4-12	SCREW
4	AN960C416L	WASHER

GENERAL NOTES

- 1) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1 POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 2) SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL 00.297 SIZE HOLES FOR WEARSHOE INSERTS. C'BORE AS NOTED AND INSTALL INSERTS EXCEPT WHERE INDICATED.

REV.	DESCRIPTION	BY	DATE																										
H	DRAWING UPDATED TO CURRENT STANDARDS. SHT 1 PL ADDED D3591-1 BUSHING. ZN C6 00.438 DIM WAS 4 PL. ADDED 00.499 DIM AND D3591-1 BUSHING. SHT 2 PL ADDED D3591-1 BUSHING. ZN C6 00.438 DIM WAS 4 PL. ADDED 00.499 DIM AND D3591-1 BUSHING. (FOR FURTHER INFO SEE DSI 9364 & NCR 08-074)	AJS	08.08.20																										
G	REPLACE NAS INSERTS W/ AELS INSERTS SWITCH TO D3670-XXXX SPACERS FOR INSTALLING FLOAT BAGS. DWG REORGANIZED FOR CLARITY	DC	07.07.31																										
F	ADD SS WEARSHOE, GASKET REMOVE FWD SADDLE HOLE -011/-021	PH	07.01.18																										
E	CHANGE TOLERANCE, EASE MANUFACTURE	PH	06.04.25																										
D	UPDATE TOLERANCE, CHANGE HOLE SIZE	PH	06.01.23																										
C	LENGTHEN AFT EXTENSION	PH	05.09.27																										
B	DRAWING UPDATES	PH	05.06.10																										
A	NEW ISSUE	PH	05.02.07																										
<table border="1"> <tr> <td>DESIGN</td><td>PH</td><td colspan="2" rowspan="2"> DART AEROSPACE USA, INC PORT HADLOCK, WA </td></tr> <tr> <td>DRAWN</td><td>AJS</td></tr> <tr> <td>CHECKED</td><td></td><td>DRAWING NO.</td><td>REV. H</td></tr> <tr> <td>MFG. APPR.</td><td></td><td>D3391</td><td>SHEET 1 OF 8</td></tr> <tr> <td>APPROVED</td><td></td><td>TITLE</td><td>SCALE</td></tr> <tr> <td>DE APPR.</td><td></td><td>412 FLOAT SKIDTUBE</td><td>NTS</td></tr> <tr> <td>DATE</td><td>08.08.20</td><td colspan="2"> COPYRIGHT © 2005 BY DART AEROSPACE USA, INC THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMPILED OR REPRODUCED IN ANY MANNER WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC. </td></tr> </table>				DESIGN	PH	DART AEROSPACE USA, INC PORT HADLOCK, WA		DRAWN	AJS	CHECKED		DRAWING NO.	REV. H	MFG. APPR.		D3391	SHEET 1 OF 8	APPROVED		TITLE	SCALE	DE APPR.		412 FLOAT SKIDTUBE	NTS	DATE	08.08.20	COPYRIGHT © 2005 BY DART AEROSPACE USA, INC THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMPILED OR REPRODUCED IN ANY MANNER WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	
DESIGN	PH	DART AEROSPACE USA, INC PORT HADLOCK, WA																											
DRAWN	AJS																												
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DE APPR.		412 FLOAT SKIDTUBE	NTS																										
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D3391-043 FLOAT SKIDTUBE ASSEMBLY PARTS LIST

QTY	PART NUMBER	DESCRIPTION
X	D3391-043	FLOAT SKIDTUBE ASSEMBLY
1	D3391-021	FWD TUBE ASSEMBLY
1	D3391-023	MID TUBE ASSEMBLY
1	D3391-025	AFT TUBE ASSEMBLY
1	D3564-1	WEARSHOE
1	D3564-3	WEARSHOE
1	D3564-5	WEARSHOE
2	D3566-1	GASKET
1	D3566-5	GASKET
2	D3591-1	BUSHING
24	AN3C4A	BOLT
12	AN3C6A	BOLT
8	AN3C7A	BOLT
44	AN960C10L	WASHER

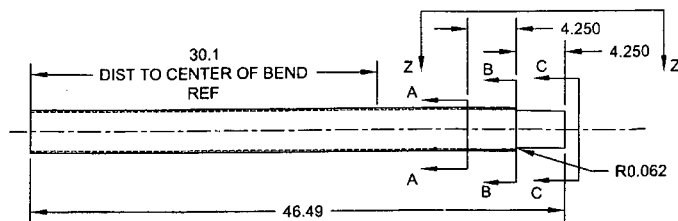
GENERAL NOTES

- 1) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1 POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 2) SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 SIZE HOLES FOR WEARSHOE INSERTS. C'BORE AS NOTED AND INSTALL INSERTS EXCEPT WHERE INDICATED.

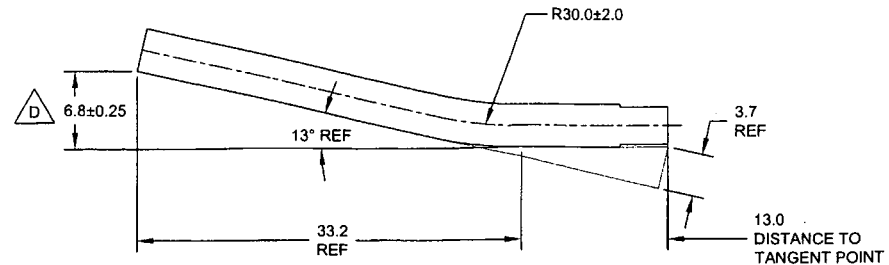
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MFG. APPR.		D3391	SHEET 2 OF 8
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08-09-25/11

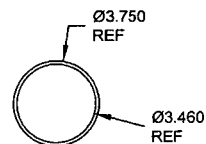
73015



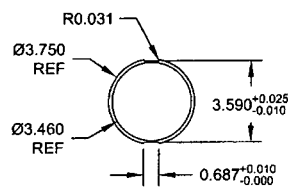
D3391-1 CUTTING DETAIL
(MAKE FROM D6013-047 SKIDTUBE MATERIAL)



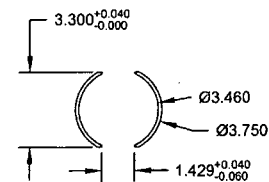
D3391-011/-021 BENDING DETAIL
(MAKE FROM D3391-1)



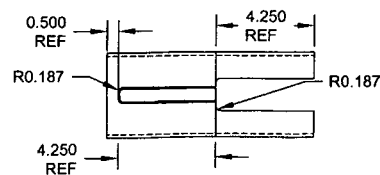
SECTION A-A
SCALE 2X



SECTION B-B
SCALE 2X



SECTION C-C
SCALE 2X

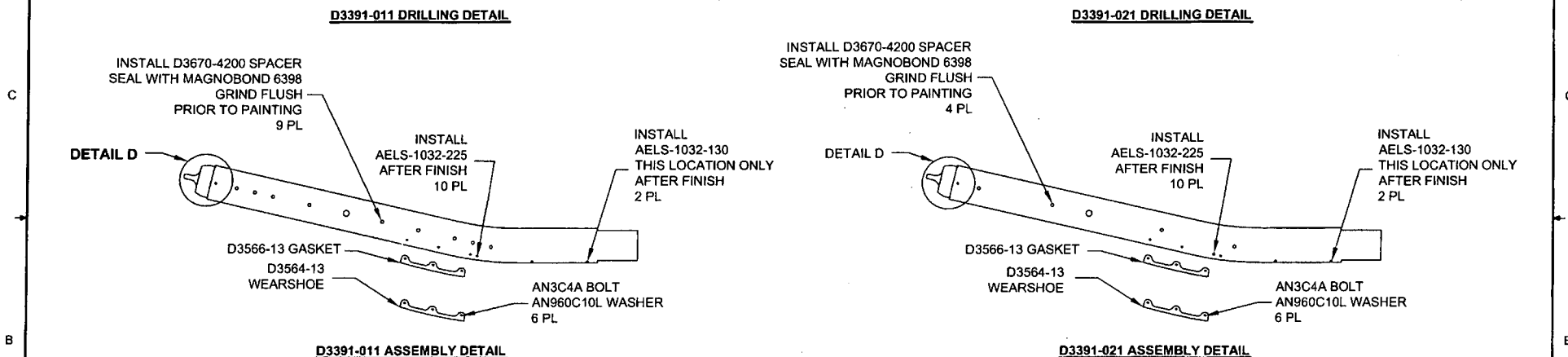
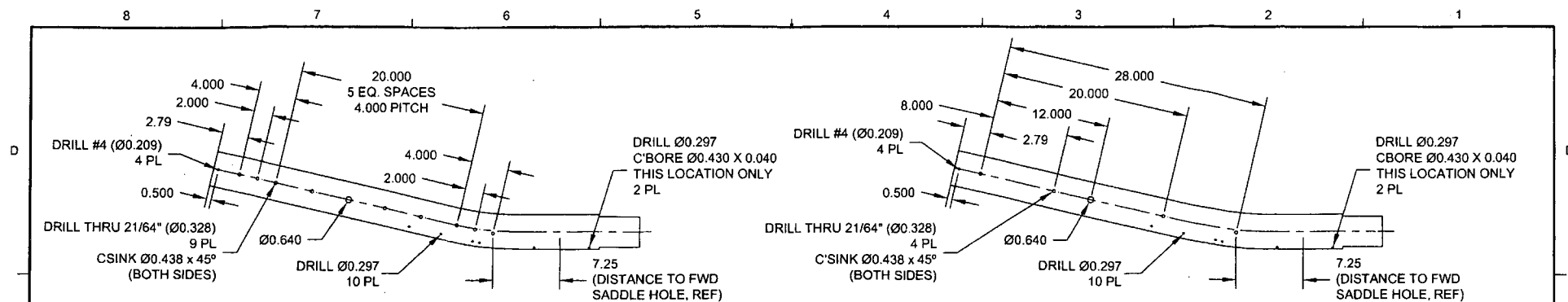


VIEW Z-Z
SCALE 2X

172015

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2-2-05 NW

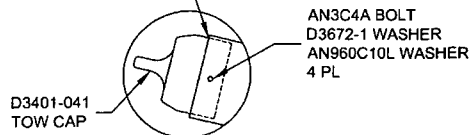
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CHECKED	<i>[Signature]</i>	DRAWING NO. D3391	REV. H
MFG. APPR.	<i>[Signature]</i>	SHEET 3 OF 8	
APPROVED	<i>[Signature]</i>	TITLE 412 FLOAT SKIDTUBE	SCALE
DE APPR.	<i>[Signature]</i>	NTS	
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D3391-011/-021 FWD TUBE ASSEMBLY PARTS LIST

QTY - 011	QTY - 021	PART NUMBER	DESCRIPTION
X		D3391-011	FWD TUBE ASSEMBLY
	X	D3391-021	FWD TUBE ASSEMBLY
1	1	D6013-047	FWD TUBE
1	1	D3401-041	TOW CAP
1	1	D3564-13	WEARSHOE
1	1	D3566-13	GASKET
9	4	D3670-4200	SPACER
4	4	D3672-1	WASHER
10	10	AN3C4A	BOLT
10	10	AN960C10L	WASHER
2	2	AELS-1032-130	INSERT
10	10	AELS-1032-225	INSERT

SEAL WITH SIKAFLEX-241/-291

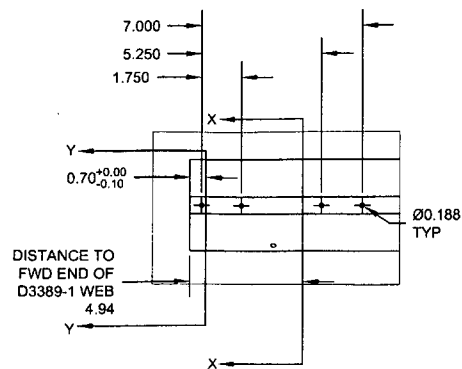


DETAIL D
SCALE 2X

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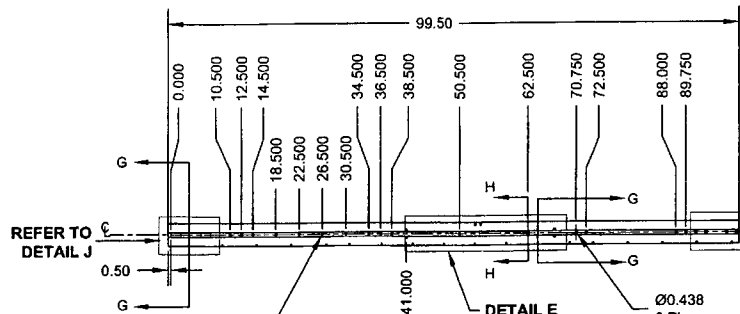
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08-09-05

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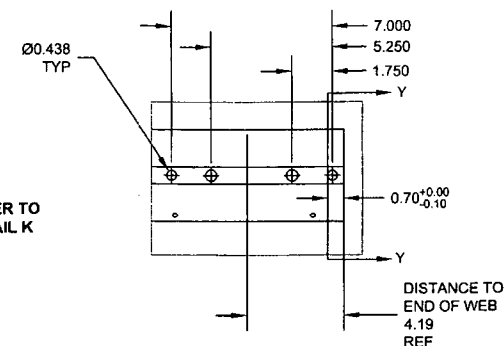


DETAIL J
SCALE 4X

DRILL THRU 21/64" (Ø0.328)
CSINK Ø0.438 X 45° (BOTH SIDES)
12 PL



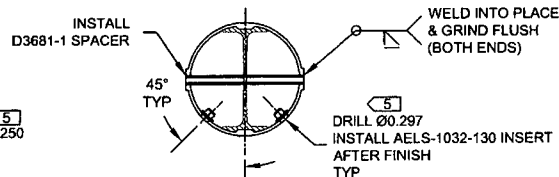
D3391-013 ASSEMBLY DETAIL



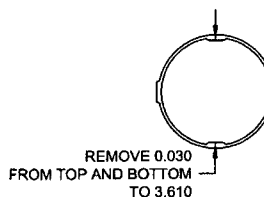
DETAIL K
SCALE 4X



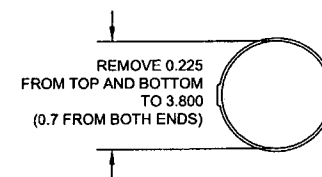
SECTION G-G
SCALE 5X



SECTION H-H
SCALE 5X



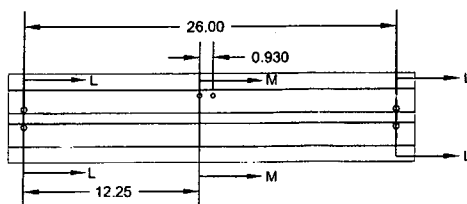
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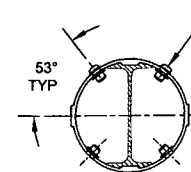
SECTION Y-Y
SCALE 5X

D3391-013 MID TUBE ASSEMBLY PARTS LIST

QTY	PART NUMBER	DESCRIPTION
-013		
X	D3391-013	MID TUBE ASSEMBLY
1	D2500-1-100	EXTRUSION
1	D3389-1	WEB
4	D3672-1	WASHER
4	D3672-3	WASHER
12	D3681-1	SPACER
24	AELS-1032-130	INSERT
4	ALS4-428-165	INSERT
4	AN960C10L	WASHER
4	AN960C416L	WASHER
4	MS27039C1-09	SCREW
4	MS27039C4-08	SCREW



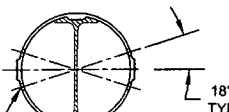
DETAIL E
SCALE NONE



SECTION M-M
SCALE 5X

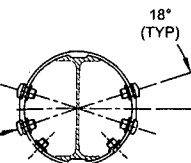
DRILL Ø0.297
INSTALL AELS-1032-130 INSERT
MS27039C1-09 SCREW
D3672-1 WASHER
AN960C10L WASHER
AFTER FINISH
4 PL

DRILL Ø0.250
4 PL



SECTION L-L
SCALE 5X

DRILL Ø0.391
INSTALL ALS4-428-165 INSERT
MS27039C4-08 SCREW
D3672-3 WASHER
AN960C416L WASHER
AFTER FINISH
4 PL



SECTION L-L
SCALE 5X

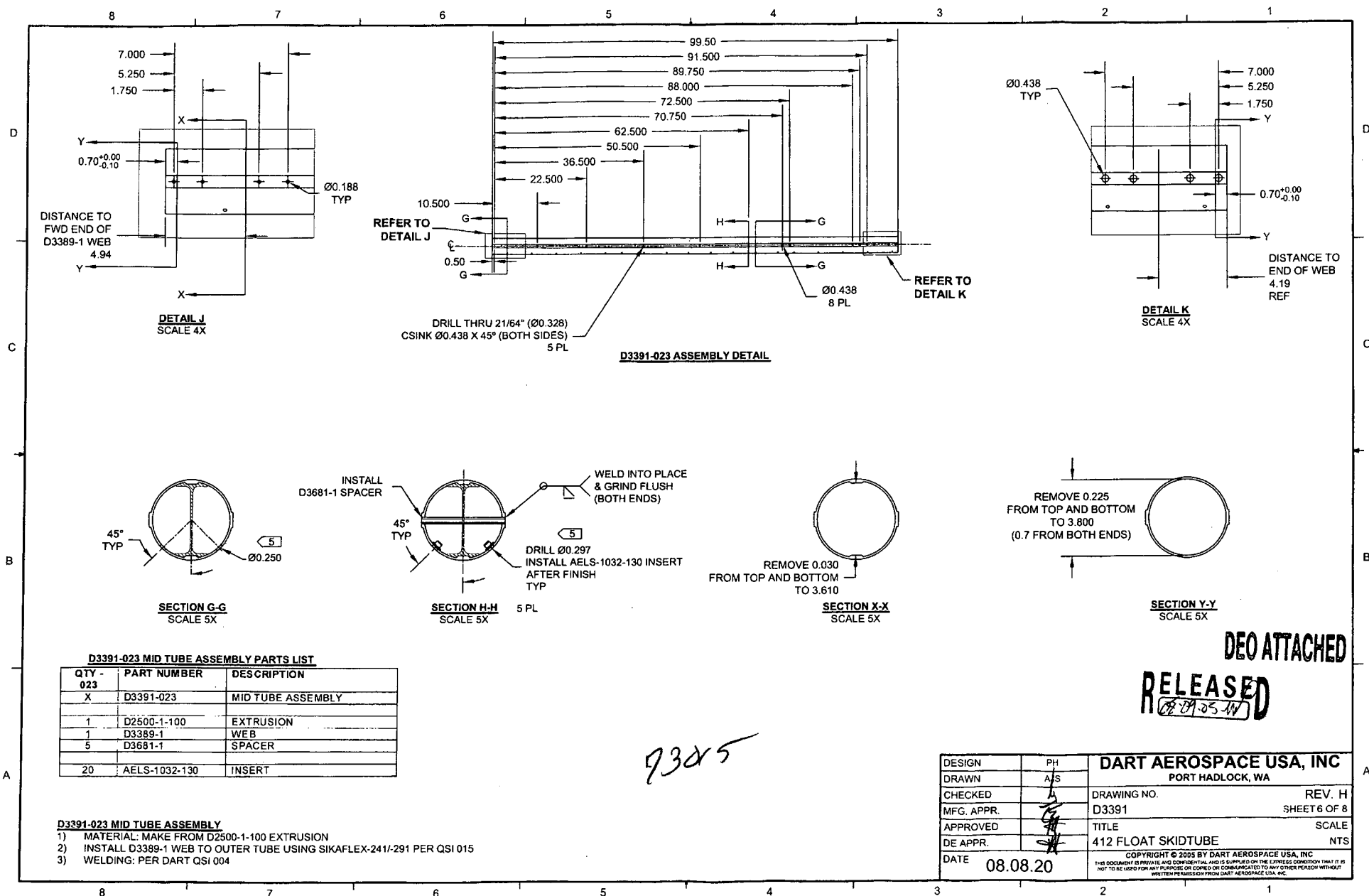
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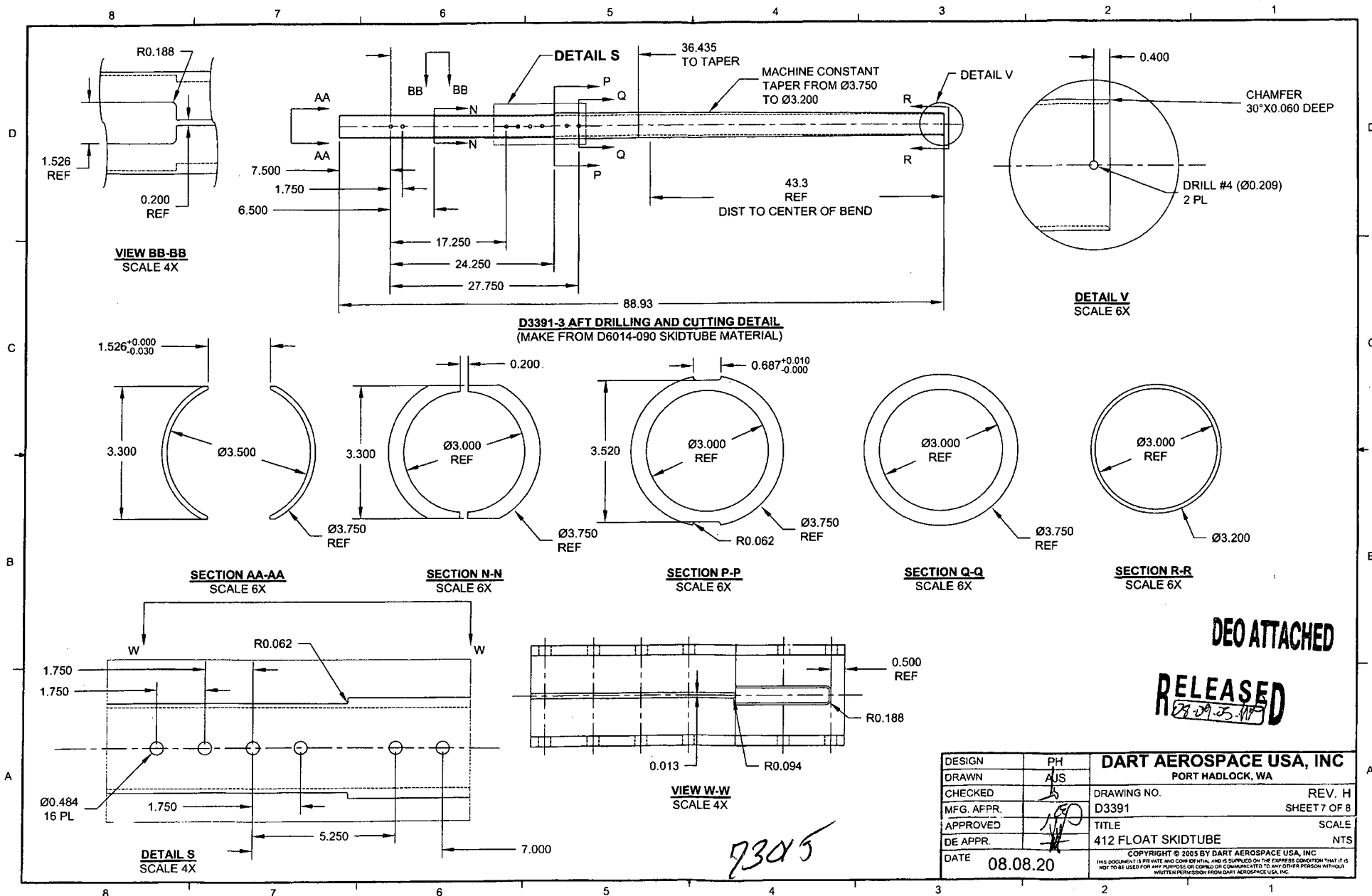
RELEASED
08-04-05-110

D3391-013 MID TUBE ASSEMBLY

- 1) MATERIAL: MAKE FROM D2500-1-100 EXTRUSION
- 2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/291 PER QSI 015
- 3) WELDING: PER DART QSI 004

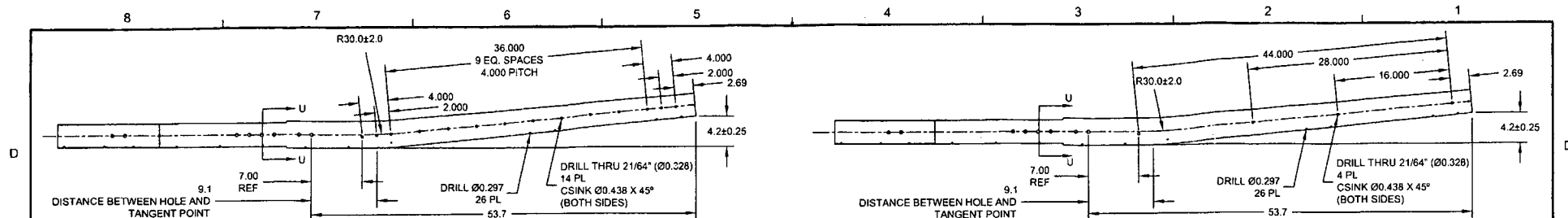
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MFG. APPR.		D3391	SHEET 5 OF 8
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DE APPR.		412 FLOAT SKIDTUBE	NTS
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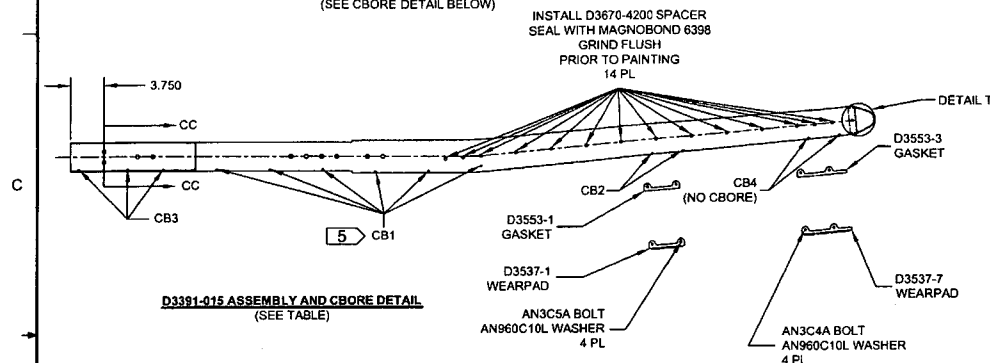
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28-09-25-117

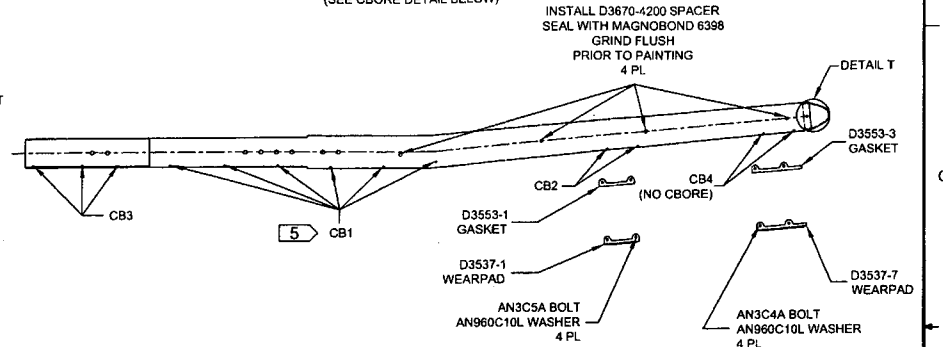


D3391-015 BENDING AND DRILLING DETAIL
(SEE CBORE DETAIL BELOW)

D3391-025 BENDING AND DRILLING DETAIL
(SEE CBORE DETAIL BELOW)



D3391-015 ASSEMBLY AND CBORE DETAIL
(SEE TABLE)



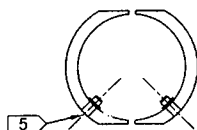
D3391-025 ASSEMBLY AND CBORE DETAIL
(SEE TABLE)

D3391-015/-025 AFT TUBE ASSEMBLY PARTS LIST

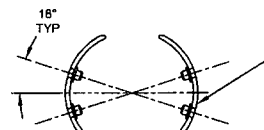
QTY - 015	QTY - 025	PART NUMBER	DESCRIPTION
X	X	D3391-015	AFT TUBE ASSEMBLY
		D3391-025	AFT TUBE ASSEMBLY
1	1	D6014-090	AFT TUBE
1	1	D2646	AFT CAP
1	1	D3537-1	WEARPAD
1	1	D3537-7	WEARPAD
1	1	D3553-1	GASKET
1	1	D3553-3	GASKET
14	4	D3670-4200	SPACER
2	2	D3672-1	WASHER
14	14	AELS-1032-130	INSERT
12	12	AELS-1032-225	INSERT
4		ALS4-428-165	INSERT
6	6	AN3C4A	BOLT
4	4	AN3C5A	BOLT
10	10	AN960C10L	WASHER

CBORE HOLES MARKED CB1-CB4 AS FOLLOWS AND
INSTALL AELS-1032-XXX AFTER FINISH AS NOTED

HOLES MARKED	QTY D3391-015	QTY D3391-025	CBORE	P/N
CB1	12	12	Ø0.430 X 0.170	AELS-1032-225
CB2	4	4	Ø0.430 X 0.170	AELS-1032-130
CB3	6	6	Ø0.430 X 0.040	AELS-1032-130
CB4	4	4	NONE	AELS-1032-130

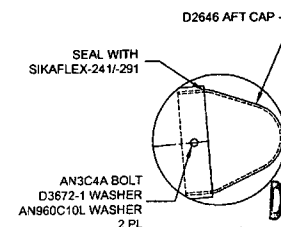


SECTION U-U
SCALE 3X



SECTION CC-CC
SCALE 3X

DRILL Ø0.391
CBORE Ø0.516 X 0.040 DEEP
INSTALL ALS4-428-165 INSERT
4 PL



DETAIL T
SCALE 4X

DEO ATTACHED

RELEASED
08-09-05/10

73015

DESIGN	PH	DART AEROSPACE USA, INC	
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DE APPR.		412 FLOAT SKIDTUBE	NTS
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DRAWING NO. D3391	TITLE 412 FLOAT SKIDTUBE	REV. H	DART AEROSPACE USA, INC ENGINEERING ORDER		D.E.O. NO. D3391-H-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>UP</i>	CHECKED <i>h</i>	MFG. APPR. <i>M</i>	APPROVED <i>MP</i>		DE APPR. <i>MP</i>		
DATE 09.09.23	DATE 09.09.24	DATE 09/09/25	DATE 09/09/30		DATE 09/09/30		

PURPOSE:

LPS-3 IS NO LONGER USED DURING ASSEMBLY OF D3391-041/-043 SKIDTUBES.

CHANGE:

AMEND NOTE 2 OF D3391-041/-043 SKIDTUBE ASSEMBLIES (ZN A6-1, A6-2) AS FOLLOWS:

- 2) ~~SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH~~
~~AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH~~
 LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS
 OFF POWDER COATING WITH MEK DEGREASER.

RELEASED
 2010-02-02
MP

93015

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